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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

HOJO et al

Serial No. : 10/541,499

Group Art Unit : 1781

Filed : July 7, 2005

Examiner : BEKKER, KELLY JO

For : FOOD ADDITIVE COMPOSITION, AND FOOD COMPOSITION CONTAINING
SAMEDECLARATIONHonorable Commissioner of Patents
and Trademarks

Washington, D.C. 20231

Sir:

Hisakazu Hojo, a citizen of Japan residing at 2-95,
Aganishi-machi, Shikama-ku, Himeji-shi, Hyogo-ken, Japan, being duly
sworn depose and says that:

1. I graduated from Industrial Chemistry, Faculty of
Engineering of Ehime University in 1988. I was employed by MARUO
CALCIUM COMPANY LIMITED on April 1, 1988. Since then, I have been
engaged in research and development of calcium carbonate for use in
printing ink between 1988 - 1992, compositions for food additives
(Ca agent, Fe agent, Mg agent) between 1992 - 2010, and fillers for
film and light dispersing agents between 1998 - 2010, and have
numerous patent applications and patents on the subjects.

2. I am one of inventors of the present invention. I have studied and am fully familiar with this specification and claims, the cited references and the Office Action dated May 17, 2010.

3. The following experiments were carried out in order to demonstrate a difference between a food additive composition not containing a chelating agent disclosed by Hojo et al (US 6,254,905) and a food additive composition containing a chelating agent disclosed by the present invention.

EXPERIMENTS

(1) Preparation of food additive

Experiments 1 and 2

The reproduction of Examples 1 and 10 disclosed by Hojo et al were made and food additive slurry compositions were obtained.

The calcium ion concentrations of the obtained food additive slurry compositions were measured according to the method disclosed by the present invention (this method being identical to that disclosed by Hojo et al).

The measured results were shown in the following Table A together with the compositions of the obtained food additive slurry compositions.

For ease of comparison, the measured results of Example 1, Comparative Example 3 and Example 14 (actually Comparative Example

due to exceeding the upper limit of the calcium ion concentration M (mg/l) < 10) were also shown in Table A.

(2) Preparation of calcium-enriched whiteners

Experiments 3 and 4

Next, using the food additive compositions obtained above, calcium-enriched whiteners were prepared in the same manner as in Example 31 of the present invention. The inspection of the precipitate and sensory test for flavor with respect to the calcium-enriched whiteners were performed in the same manner as in Example 31, and the results were shown in Table B.

For ease of comparison, the results of Example 31, Comparative Example 23 and Example 44 (actually Comparative Example since a calcium ion concentration exceeds the upper limit M (mg/l) < 10) were also shown in Table B.

Table A: Food additive slurry compositions

Food additive slurry composition		Amount of gum arabic (B) parts by wt.	Kind of chelating agent (C)	Amount of chelating agent (C) parts by wt.	Kind of additive (D)	Amount of additive (D) parts by wt.	Calcium ion conc. M mg/l
Experiment 1	Example 1 of Hojo	20	—	—	—	—	151
Experiment 2	Example 10 of Hojo	1.2	—	—	xanthane gum	0.5	15
Example 1	Present invention	5	citric acid 3 K	0.5	—	—	1.0
Comp. Ex. 3	Present invention	3.5	—	—	—	—	22
Example 14 (Comp. Ex.)	Present invention	78	citric acid 3 Na	0.02	pullulan trehalose	3 12	12

Table B: Calcium-enriched whiteners

Calcium-enriched whiteners	Food additive slurry composition	Amount of precipitate				State			Flavor
		After 7 days	After 1 month	After 3 month	After 7 days	After 1 month	After 3 month		
Experiment 3	Product of Exp. 1 (Hojo)	—	—	—	2	1	1	3	
Experiment 4	Product of Exp. 2 (Hojo)	—	—	—	2	1	1	3	
Example 31	Product of Ex. 1	4	4	4	4	4	4	5	
Comp. Ex. 23	Product of Comp. Ex. 3	—	—	—	2	1	1	3	
Example 44 (Comp. Ex.)	Product of Ex. 14 (Comp. Ex.)	4	3	3	3	3	2	3	

The expression "—" in "Amount of precipitate" indicates that the amount of precipitate was not observed because the calcium-enriched whiteners gelled.

(3) Results

As is apparent from Tables A and B, the calcium-enriched whiteners of Experiments 3 and 4 containing the food additive compositions of Experiments 1 and 2 reproducing Hojo et al. which do not contain a chelating agent and thus exceed the upper limit M (mg/l) < 10 in calcium ion concentration of the present invention, are violent in gelation and not suited for products. With respect to flavor, those are evaluated "3" (Flavor is slightly bad, i.e., unpleasantness is somewhat felt.).

Meanwhile, the calcium-enriched whitener containing the food additive composition of Example 44 (actually Comparative Example) containing the food additive composition of Example 14 (actually Comparative Example), which contains a chelating agent but exceeds the upper limit M (mg/l) < 10 in calcium ion concentration is inferior to that of Example 31 but gelation does not take place. This difference comes from whether or not the chelating agent is contained in the food additive compositions.

In contrast, in the calcium-enriched whitener of Example 31 containing the food additive composition of Example 1, which contains a chelating agent and thus controls the calcium ion concentration M (mg/l) to $0 \leq M < 10$, even after 3 months, an amount of precipitate is evaluated "4" (precipitate is rarely observed.) and flavor is evaluated "5" (Flavor is good.).

4. As stated above, a product such as cow's milk containing

animal proteins addressed by Hojo et al has some reactivity with calcium ion, but gelation does not take place to a given amount of calcium ion because of a relatively large permissible range of calcium ion concentration with respect to gelling and viscosity increase.

In contrast, a product such as potion (coffee whitener) and soy milk containing vegetable proteins addressed by the present invention has high reactivity with calcium ion and therefore the calcium ion concentration must be reduced to obtain a stable product.

5. All statements made herein are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated this (0th) day of August, 2010

Hisakazu Hojo

Hisakazu HOJO